

REMARKS

Favorable reconsideration and allowance of the claims of the present application are respectfully requested.

In the present Office Action, Claim 7 stands rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Before discussing the indefiniteness rejection, applicants observe that minor amendments have been made to Claims 1, 6, 11 and 12, and new Claim 23 has been added. Support for newly added Claim 23 can be found at page 12, lines 12-13 of the specification and originally filed Claim 7. With respect to Claim 7, applicants have amended the claim in a manner that obviates the indefiniteness rejection.

Since the above-mentioned amendments to the claims are fully supported by the originally filed application, entry thereof is respectfully requested. Applicants respectfully submit that the instant §112, second paragraph rejection has been obviated and withdrawal thereof is respectfully requested.

In the present Office Action, Claims 1-22 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over WO 97/24420 to Barnicki et al. ("the '420 publication") in view of U.S. Patent No. 6,423,857 to Copeland et al. ("the '857 patent").

In response, applicants submit that the claims of the present invention are not rendered unpatentable by the disclosure of the '420 publication and the '857 patent since the applied references, either alone or combined, fail to teach or suggest the claimed process for preparing one or more purified fatty acids.

Specifically, with respect to the primary reference, the '420 publication, applicants submit that there are several distinctions between the process claimed in the present application and the process disclosed in the '420 publication. First, the oil and/or fats being treated by the process claimed in the present application have a phosphorus content below 200 ppm. In contrast, the oil and/or fats treated by the process disclosed in the '420 publication is phosphorus-rich, for example, egg yolk lipids which have 30-40% by weight of phospholipids. See page 6, lines 2-6 and lines 16-17; page 2, lines 3-7; page 18-24; and page 14, lines 1-6. Second, the hydrolytic splitting step claimed in the present application is not a saponification¹ step. In contrast, the hydrolytic splitting step disclosed in the '420 publication is a saponification step. See page 8, lines 9-13. In this regard, although the '420 publication mentions that the hydrolysis of lipid mixture may be catalyzed by an acid, there is no further explanation nor reference to the acid catalyzed method in the '420 publication. Third, the heat-treating step in a thermal pre-treatment unit claimed in the present application is to reduce the monoglyceride content in the crude fatty acid mixture. See page 9, line 29 to page 10, line 6. In contrast, the heat-treating step disclosed in the '420 publication is to convert sterols present in the crude fatty acid mixture to sterol fatty acid esters. See page 6, lines 24-27.

With respect to the secondary reference, the '857 patent, it teaches a method for recovering free fatty acids during purification of vegetable oil. See column 1, lines 12-13. Applicants submit that none of the above-described deficiencies of the primary reference are disclosed in the '857 patent. Therefore, the combination of the cited reference fail to disclose, teach or suggest the process claimed in the present application.

¹ Saponification is the hydrolysis of an ester under basic conditions to form an alcohol and the salt of a carboxylic acid. Saponification is commonly used to refer to the reaction of a metallic alkali (base) with a fat or oil to form soap. See <http://en.wikipedia.org/wiki/Saponification>. The instant specification also provides a definition to "saponification" consistent to the wikipedia definition, see page 1, line 29.

Furthermore, applicants submit that none of the cited references appreciate the surprising and superior result obtained from the process claimed in the present application. Specifically, the present application directs to an economically feasible industrial process to produce free fatty acids with good color quality and color stability in good yield. See page 5, lines 10-22; and page 17-19 (examples 1-5). In this regard, applicants submit that the hydrolysis step disclosed in the '420 publication involves the use of a considerable amount of chemicals, such as bases, acids, etc., and it also produces large amounts of waste stream. Moreover, such a hydrolysis step is often performed as a batch process. Furthermore, in the heat-treating step disclosed in the '420 publication, a substantial amount of fatty acid is lost due to the phospholipids and the formation of sterol esters. See page 4, line 24 to page 5, line 8; and page 1, line 29 to page 2, line 8. Therefore, the process disclosed in the '420 publication is not economical feasible for the industrial preparation of free fatty acids with good color quality and color stability in good yield.

In the present application, applicants have made a surprising finding that the heat-treating step recited thereof has several advantages: (1) converting the monoglycerides to higher boiling compounds, mainly di and triglycerides, and thus help to remove the content of monoglycerides in the final fatty acid product in the subsequent distillation step. Such removal has a significant impact because the monoglycerides substantially influence the performance, the color quality and the color stability of the final fatty acid product; and (2) additional reactions that may also take place during the thermal pre-treatment step are the polymerization and/or decomposition reactions of (reactive) colored bodies. Decomposed colored bodies can be collected as separate fractions during the subsequent distillation step, whereas polymerized coloured bodies remain in the residue after distillation. See page 9, line 29 to page 10, line 26.

In view of the above remarks, the conclusion is compelling that the present application is indeed non-obvious over the cited references.

The rejection under 35 U.S.C. §103 has been obviated; therefore reconsideration and withdrawal thereof are respectfully requested.

Thus, in view of the foregoing amendments and remarks, it is firmly believed that the present case is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'L. Szivos', with a long horizontal flourish extending to the right.

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